

Eng. Soc. Incorporation

the CANNON

February 4, 1981

University of Toronto Engineering Society

Vol. III No. 6

APEO to Institute Exams

by John Samochin
Eng. Sci. 8T3

In the spring of 1982, a new programme of testing for admission to the Association of Professional Engineers of Ontario will begin. To gain membership in the APEO, and earn the designation "P. Eng.", presently requires only the completion of a programme of engineering study at an accredited institution and evidence of two years of practical experience. Entry into the profession is also possible through the completion of a non-accredited degree programme and two years experience. Special application can be made to the APEO Board of Examiners who review the candidate's background and make recommendations on the areas of further study required. Completion of technical courses in these subjects provides for admission to the profession.

Starting with the graduates of 1981, all applicants will have to write and pass an examination of professional practices and engineering law as well as meet the present standards. The APEO envisions an exam that

graduates could write six months to a year after graduation, giving time to become familiar with the Code of Ethics and the responsibilities of engineering practice.

P.B. Huches, an administrative official of the APEO, states that the purpose of the exam is not to restrict APEO membership, nor to increase the difficulty of gaining membership, but rather to foster professionalism in new grads. "These types of exams are not uncommon among professional organizations," Hughes added.

He makes it clear that, at this point in time, the exams are not finalized. The structure and content is still rather vague. The APEO is therefore unable to respond officially to specific questions about the paper. Hughes did say, however, that the exam would be about three hours in duration, and be in two equally weighted sections: Professional practice and ethics, and; engineering law and professional liabilities. It would be in an essay answer format, probably graded pass/fail, and provisions would be made for failed candidates to re-write the paper.

continued on page 2



After four weeks of intensive rehearsal, Skule Nite 8T1 opens tonight at Hart House Theatre. The reputation of the show precedes it; the show was eighty-five percent sold-out after two days of ticket sales.

UTSWC, Toike

On January 27, officials of the Engineering Society and the Toike Oike met with the University of Toronto Status of Women Committee, Dean Gordon Slemmon, and Dr. William Alexander, Vice-President Campus and Community Affairs. The meeting, arranged by Alexander at the request of the UTSWC, focussed on discussion of the group's demands for changes to the Toike and the actions of the Society in this regard.

Communications committee chairman Alan Lechem read to the meeting the newly drafted Eng. Soc. publishing policy and tried to illustrate how this document should solve the problems pointed out by the UTSWC. The policy institutes a new, more pragmatic means of disciplining an editor. This presently requires a Society-wide referendum.

The policy states that the

Toike Oike, and indeed all Society publications, should bring credit to the Society. The UTSWC representatives thought this was too vague, and guaranteed nothing. They seek specific reference to the "abolition of sexist, racist, and anti-gay material", and they want an editorial board to review the paper before it goes to press to ensure that these standards are met.

Dean Slemmon pointed out that such control is the responsibility of the editor, operating in conjunction with a stated or understood editorial policy. If the editor does not meet his obligations in this regard, the publisher should act.

The new publishing policy was designed to serve this purpose, asserted the Eng. Soc. representatives, and it was agreed that a formal statement of editorial policy should be prepared. This

statement would not be included in the constitution, but provisions for its revision would be. Entrenchment of the policy in constitution document would make it difficult to adapt to meet changing needs.

Both sides left the meeting cautiously optimistic. UTSWC member Reva Landau consistently pressed for inclusion of the phrase "abolition of sexist, racist, and anti-gay material", and when such was not promised she stated the accomplishments of the meeting would have to be discussed with the members of her group before the committee would make a formal statement.

The Communications committee has moved to include provisions for an editorial policy in the constitution. It is not likely that such policies will be in place before next year's Council takes office.

This Month

Incorporation

This Thursday and Friday, the Engineering Society seeks a mandate for incorporation. It is a large step, and a costly one, but the benefits are substantial. See the special Incorporation information page 4

ARCAS

Toxic substances in the workplace pose a very real threat. Many sophisticated systems have been devised to protect the employee and the employer page 10

the CANNON

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THE CANNON is a publication of the University of Toronto Engineering Society. It is published monthly to announce Eng. Soc. events, discuss Faculty and University matters, and present technical information of interest to Engineering undergraduates. Subscriptions are available, call Ella at 978-2917. Anyone interested in helping with THE CANNON is most welcome.

THE CANNON encourages submissions; please type or write legibly. Deadline for articles is one week before publication date, notices and letters by 5:00 p.m. the Friday prior to publication. Comments on THE CANNON or articles appearing in it are appreciated. The editors reserve the right to edit letters for brevity.

Letters

As a participant in the recent meeting with the University of Toronto Status of Women Committee (UTSWC), I would like to express my views on the meeting and on the Toike Oike.

It is the belief of the Communications committee (of which the Toike is a responsibility) that the Eng. Soc. should have a publishing policy for the Toike. This would outline its objectives and deal efficiently with complaints. It is separate from the editorial policy, which is not constitutional and changes as circumstances require.

For the incorporation of the Eng. Soc. it is necessary to have a new constitution, thus the Communications committee has drafted a new publications policy for the Toike, and all other Eng. Soc. publications.

At the meeting of the UTSWC, it was this policy that was the focus of discussion. To understand the resulting debate, a brief summary of the policy is required. In essence, it outlines how and what the Toike

publishes and when. It does not include untenable criteria (such as "not to be sexist") since this is unadvisable in a constitutional document.

A number of demands had been raised previously by the UTSWC for the revamping of the Toike. Among these were the formation of an editorial board, and the inclusion of a clause explicitly requiring the abolition of "racist, sexist and anti-gay material". In the former demand, the women were uninformed and impudent enough to require that they sit on the editorial board, and decide how long they should do so "depending on the performance of the Toike Oike". This is unacceptable from at least two points: very, very few other papers are so reviewed before going to press; no other campus paper has the UTSWC on their board.

The latter demand deserves more attention. To demand the abolition of sexist etc. material requires a statement of what is sexist. But such a definition is virtually impossible since sexist to some is not so to others. If accepted, such a definition would be like a noose around the editor's neck ready to be pulled tight should it be infringed. Moreover, having abolished sexist, racist, and anti-gay material by specific definitions of such, the Toike is now open to attack from people with red hair who think that the Toike is degrading them, too!

So if one is not going to devise with the editor specific guidelines, what protection does one have against sexism etc. in the Toike?

I suggest the following. Set up an editorial policy whereby the

editor meets with various interested groups, and as a result of this meeting formulates the editorial policy. A clause such as "not to degrade any particular group or groups; or to publish any such material that may be considered in poor taste" might be in this policy. Whereas this does not state specific topics to avoid, it does commit the editor to consider carefully what material to print. Although it might be suggested that this kind of statement is too ambiguous and that the policy carries no clout, this is seen to be adequate. Firstly, it is the significance of setting up a policy with input from other groups which is important, and secondly it allows for debate from affected parties as to whether the material was indeed offensive. Surely this is far more equitable than having an inflexible legal definition of prohibited material?

Sadly, no matter how well an editorial or publishing policy is devised, no matter what complaint and enforcement mechanism is implemented, and no matter how much concession is made to various demands, this does not ensure a change in the Toike. The critical factor in change will be in the material itself, for the regulations are redundant unless the material they require is submitted.

In closing, I ask for an end to these no-longer productive demands, and for a channeling of energy into the crux of the problem; generation of the material itself.

Alan Lechem
Co-Chairman
Communications Committee

Think About It Then Speak Up

A lot of thought, a lot of time and effort has gone into the Society's efforts at incorporation. This week, the product of these efforts gets its first real test. Do we want to incorporate our Society?

Most people will argue that we've survived this long (nearly a hundred years) without being incorporated. They cite the substantial costs of legal assistance and the spent man-hours as wasteful. There is perhaps a fear that we are moving from a straight-forward student government to a top-heavy bureaucracy. Why bother?

In truth, if we have survived this long it has been due to a certain element of luck. There have been a number of occasions when officials of the Society have found themselves in very touchy legal circumstances, through no fault of their own. The people who accept the responsibility of running our Society should not be saddled with the burden of personal legal liability for the actions of the Society as a whole.

A few years ago a nurse was injured by bits of packing when the Skule Cannon was fired. There was discussion of possible legal action against the Cannoneer, but thankfully, it never materialized. Recognizing the astronomically high damage claims awarded today, one can understand that such a judgement against a student could mean the end of a career before it even started.

As Vice-President: Administration John Byrne describes in his article in this issue (see page 4) the time for incorporation is now. Due to last year's fees increase the Society has the money to pay for the process of incorporation. If it doesn't happen now, it won't happen for a long time. It won't be long before the small surplus created by the increase is eaten away by inflation.

The need is real, and the time is right, but there is no need to rush into the situation "holus-bolus". Most of the work on the incorporation process has, necessarily, been done in committee. Obviously the results of the exercise have been found satisfactory by Council, but something may have been overlooked in short-sightedness.

The new constitution, reproduced herein, is essentially the same as our present constitution but not entirely so. There are significant changes. Remember that approving the incorporation does not necessarily mean approving the constitution.

Read the document, and consider the arguments. Make up your mind and let Council know what you think. They'll be spending your money on the basis of the referendum vote.

John Byrne has worked hard for incorporation and he's done a very good job. He has shown incorporation to be beneficial to our Society. If you agree, vote yes; if not, vote no. But be sure you make your opinion known.

SCS Offers Course

continued from page 1

For those interested in an academic approach to meeting these requirements, the School of Continuing Studies of the University of Toronto offers a course covering ethics and law. Prof I.G. Currie of the Department of Mechanical Engineering says this course (called ECE 1011) deals with such topics as: the definitions of

"profession" and "ethics", patents, copyrights, formation and breaking of contracts, the engineer as an expert witness, and liability.

Successful completion of this course, or another under APEO designation 70-Common-A1, may exempt applicants from the APEO exam. This will have to be confirmed when official APEO policy is announced.

A New Tradition

The Cannonball is a long-standing Skule tradition but Cannonball 8T1 was a Cannonball with a difference.

The popularity of the affair had been waning in recent years, as people lost interest in a semi-formal dance. The decision to revitalize the dance meant moving it off campus to the Sheraton Centre, and including a full sit-down dinner. However, improving the atmosphere entailed higher costs.

Over the summer, Council decided that the cost of \$40 per couple would scare many people

away, and so a \$10 subsidy was instituted.

The decision proved to be the correct one. Cannonball 8T1 was held on Saturday, January 31, and more than one hundred and twenty couples, including a number of faculty members were present to enjoy the improvements.

The Band, of course, provided its own brand of entertainment, and the Cannon made its presence felt, but the "Inter-Course Competition" did not survive the transition to a more sophisticated affair.

Eng. Soc. News

Electrical Wins Potts Trophy



The champion Electrical team takes the field in the 1981 Chariot Race.

Powerhouse Mechs Finish Last

Unlike last year's dismal event, the 1981 Chariot Race was a resounding success, due to a good turnout and excellent race conditions. Teams from Civil, Geological, Mechanical, Industrial, Engineering Science, Electrical, and First Year participated, with Electrical capturing the coveted Jerry P. Potts Trophy.

The Mech team, winners of the race six of the previous seven years, finished last. They had barely rounded the third turn of the oval course by the time all others had completed the race. Their poor showing was apparently due to a massive attack of vengeful Chemicals, whose chariot had allegedly been stolen and dismantled by the Mechs prior to the

race.

It was also rumoured that the mech group had made efforts to sabotage the Eng. Sci. chariot by sealing the vault in which it was stored with glue.

As is usually the case, the eventual victors managed to win simply by remaining innocuous. It is reported that they calmly walked most of the course, and only sprinted to the front when the finish was close at hand. In this manner they avoided the attention of opposing blockers.

Geological narrowly defeated Civil for second place, while Frosh, Eng. Sci., and Industrial followed in order. Electrical is allowed to retain the trophy until three days before next year's race.

Skule Nite 8T1



The Engineering Society Awards committee wants you! The Society offers a number of awards to recognize interest and involvement in Society affairs. The Centennial, Semi-Centennial, and Skule Cannon awards are given annually to students in the second, third, and fourth years, and take the form of a financial consideration. Candidates must pass their year in order to be eligible.

Interested people, or those knowing someone who might qualify, should submit names to Fourth Year chairman Brian Baetz.

Dollars to Give Away

At the January Executive committee meeting it was decided that the Awards committee should also be responsible for the disbursement of the Society's charitable funds. The committee is currently trying to identify three or four suitable charities to receive donations from the Society. Approximately a thousand dollars is raised annually by the Society for charitable purposes. The charities on the committee's short list will be brought to Council for the final selection. Again, Society members are asked to submit suggestions.

S Dance

Plans have been finalized for the Engineering Athletic Association's 1981 S-Dance. In a departure from recent tradition, the dance will be held on campus, at the Great Hall of Hart House on Friday, March 13. A small admission charge of \$1.00 will be made, and with that each person gets a free beer. E.A.A. President Dale Kerr says that it's primarily a head counting procedure. "We want to know how many are coming."

The evening will be a casual

affair, no jeans, and a good attendance is expected. Letters will be presented to S-point achievers, and awards made to members of the many successful Skule teams.

For those students interested in trying for their S letter, point forms and regulations are available from Ella in the Eng. Soc. offices.

Tickets for the S-Dance will soon be on sale at the Engineering Stores.

Skule Nite 8T1: A Musical-Comedy Revue
FEBRUARY 4—7 8:30 p.m.
Hart House Theatre

Reserved Seat Tickets available at:

Hart House Theatre Box Office: University of Toronto (978-8668)

Eng. Soc. Incorporation

Why Incorporate?

by John Byrne
Vice-President: Administration

On February 5th and 6th the Engineering Society will be holding a referendum to ask the membership whether they approve of the incorporation of the Engineering Society. The new constitution shall not be finalized until after the referendum so it is important to note that voting yes for the referendum still allows for changing the constitution. The referendum only asks whether the process of incorporation is acceptable or not. This article hopefully should be able to answer the questions that some of you may have on this issue before you vote.

A corporation essentially has an existence distinct from its members. Unlike the Engineering Society under its present structure, a corporation is a legal entity and as such can enter into legal agreements under its own name without personal liability to the signing officers. In Canada, incorporations can be done under the Ontario Corporations Act or the Federal Corporations Acts. Although the provisions of the Federal Act are more flexible than those of the Provincial Act the Federal Act requires its directors to be 21 years of age or older as opposed to 18 for the Ontario Corporations Act. It is mainly for this reason that the Engineering Society is applying for incorporation under the Ontario Act. The type of corporation that the Engineering Society would form would be one with no share capital, that is to say a non-profit corporation. In such an arrangement any profits shall be used for promoting its objectives rather than being directly distributed to the members as dividends as in a profit making corporation.

WHAT ARE THE ADVANTAGES OF INCORPORATION?

There are several advantages of Incorporation which are

directly applicable to the Engineering Society.

1. Limited Liability

Under the present conditions the Executive Officers of the Engineering Society, that is the President, the two Vice-Presidents and the Treasurer are personally liable for any debts or obligations which are entered into on behalf of the Engineering Society. Under incorporation, however, the signing officers are relieved of this liability and the liability rests with the incorporated Society as a whole. This point is the overriding motive for our incorporation and its importance can be seen by noting that the Engineering Society with its publications and its Stores operations has an annual cash flow approaching \$250,000. Yet the net assets of the Society at any one time excluding the Store's inventory and our meagre office furniture would be less than \$5,000. Clearly, a student officer could not be expected to assume personal liability if the society is required to make a settlement regarding a contract. The last law suit that was brought against the society was in 1979 regarding an advertising contract for the yearbook and it named as defendants the yearbook editor and the society President. Fortunately, the suit was defeated.

It's important not to interpret this idea of liability protection as giving *carte blanche* to the officers. In cases of breach of duty or personal negligence they themselves will be personally liable regardless of incorporation. As an example of liability protection, the editor of the Toike Oike would not be personally liable if a suit for slander was brought against him. Instead, with incorporation, the editor would be protected by the Engineering Society which would be responsible as the publisher. To take another example, if the firing of the cannon injured someone resulting in a lawsuit (which has

happened in the past although the suit was later dropped) the Cannoneer would not be held responsible (unless there was personal negligence) but the Engineering Society would be; after all, it authorized the firing. The main point is that incorporation protects the individual members of the society and, as well, encourages the Society to ensure its members act responsibly.

2. The right to enforce contracts

Without incorporation the Engineering Society could not enforce a contract through legal action unless one of the signing officers were willing to take on the risk of a personal court action. This is an unfair risk to ask of an individual. The minutes of Engineering Society council meetings of last year (1980) show that the council was at one time considering court action regarding a contract. This dispute was, however, settled out of court.

3. Legal Identity

As a corporation the Engineering Society would acquire rights, such as the right to own real estate in its own name. As well, Government agencies prefer to deal with corporations while granting licenses or in giving out grants such as Wintario grants.

WHAT ARE THE DISADVANTAGES OF INCORPORATION?

Incorporation can have several disadvantages the most important of which are explained below.

1. Cost

Incorporation requires an initial registration fee and legal fees to cover the help of a lawyer in preparing the application for incorporation. As well, there is an annual expense of special stationery such as a minutes book. The annual recurring expenses would be no more than \$80 and could be easily fitted

into the Society's administration budget. At this time however, just having received a fees increase the Engineering Society has enough money to do this, money that it will no longer have as inflation eats into our revenue over the next few years. Financially then, this year is the best time to incorporate and the return on the investment should be well worth it.

2. Formalities of Administration

The business affairs of the corporation unlike the unincorporated society would have to adhere to strict rules stated in the Ontario Corporations Act. Fortunately the Engineering Society already has an internal structure that requires very little adjusting for compatibility with the Act. The present constitution which serves us very well requires mostly only changes in wording to the proper legal language. The new constitution that has been adjusted for incorporation is printed in this paper. One addition that has been made is a provision for an Annual General Meeting of the membership to appoint an auditor. Here, a room such as Convocation Hall, or Med Sci Auditorium would be booked in order to allow any members to attend if they wished to do so. This is done now by SAC and doesn't appear to cause any problems for them.

3. Red Tape

Quite bluntly, becoming incorporated can be quite a hassle. Most of the work has however already been done by the Executive Committee and the Constitutional Committee. All that remains to be done now are the approvals by the membership in this referendum and by the Engineering Society and University Governing Councils.

WHAT ARE SOME OF THE OTHER OPINIONS ON INCORPORATION?

Incorporation has been

strongly recommended by various people and agencies. Our auditors last year, Clarkson and Gordon, recommended incorporation in their year-end report. As well, the University lawyers, Cassels, Brock, state that incorporation is a prudent course where a student society has extensive financial and contractual dealings as is the case with the Engineering Society. The APEO has agreed to allow our use of the word "Engineering" in our corporate name which is a necessary part of the application. Furthermore, the Students Administration Council recommends it, being incorporated themselves, and the University Administration is presently encouraging incorporation for all student societies.

WHERE DO WE GO FROM HERE?

After approval by the students in the referendum, the new constitution shall be examined by council and hopefully passed although amendments can be done in council. Following this, the matter shall be submitted first to the University's Committee on Campus and Community Affairs and then to Governing Council for approval. This is necessary in order to use the name "University of Toronto" in our corporate name and for the continued collection of our fees in the University tuition. Following that, incorporation shall be applied for with the Ontario Government and the Society should be incorporated by the Joint Council Meeting on March 31st.

If anyone has any further questions they should contact John Byrne, Vice-President: Administration, at the Engineering Society offices on the 3rd floor of the Metro Library Building. Above all, make a decision on the issue, then vote!

You Only Graduate Once!

GRAD BALL 8T1

Saturday March 21, 1981
Harbour Castle Hilton

Tickets on Sale Immediately after Reading Week

Eng. Soc. Incorporation

The Constitution

The proposed constitution that is printed in this paper is one that has been adopted from the old constitution with amendments to make it compatible with the Ontario Corporations Act. It should be remembered that voting for incorporation does not necessarily mean voting for this constitution in its entirety. Although this is the first draft that has been submitted by the Constitutions Committee, amendments could still be made in the next Engineering Society Council meeting on February 24. So, if you would like to make a suggestion contact your class rep or inquire at the Engineering Society offices.

The most noticeable change¹⁵ probably that which is now the Engineering Council will become the board of directors of the corporation. Below are listed some of the sections of the new constitution that may appear confusing with an explanation of why they are there.

3.17 Affiliate Members refers to the Clubs such as the Mechanical Club and the Civil Club. As a club they do not have a separate vote in the Society but each student in the club, as a Member of the Society does have a vote as stated in section 3.14.

4.07 Indemnity. This section merely states one of the main advantages of incorporation,

namely that signing officers are not personally liable for their actions as officers of the Society except for cases of personal negligence.

4.17 This clause shows that the incorporated society has the right to borrow money in its own name. The next section limits this power so that one year's council will not pass on a large debt to another year's council.

7.25 These are the duties of the secretary in accordance with the Ontario Corporations Act. The major task will be to keep a record of all previous members, however this should be feasible with computer printouts from the faculty office.

8.01 The Ontario Corporations

Act states that all officer elections must be done at a meeting of all the members. Fortunately, a vote by written ballot, even though it takes place over a couple of days can qualify as a meeting, so elections will remain as they are now. Referenda will also be classified in future as meetings of the membership.

8.05 For the presentation of the audit a general meeting must be called at which all members of the Society shall have a vote. This is required by the Ontario Corporations Act and will be held in a room such as Med Sci Auditorium or Con Hall. Although it sounds like a lot of trouble, the quorum for such a meeting is only a little higher

than a regular council meeting and so sufficient attendance is assured.

12.05 This authority of Governing Council is the price that has to be paid for the convenience of having the University collect our fees in the tuition payments. It should be noted however that the sections that can only be changed with Governing Council approval are those that ensure proper electoral and financial procedures. In other words, since they are collecting the money for us they are making sure that the Society is accountable to the students.

- John Byrne

BY-LAW No.1

THE UNIVERSITY OF TORONTO ENGINEERING SOCIETY BY-LAW No. 1

A by-law relating generally to the conduct of the affairs of The University of Toronto Engineering Society.

BE IT ENACTED AND IT IS HEREBY ENACTED as a by-law of The University of Toronto Engineering Society (hereinafter called the "Society") as follows:

I. HEAD OFFICE

1.01 The head office of the Society shall be in the City of Toronto, in the Province of Ontario and at such place within the municipality in Ontario as the Councilors of the Society may from time to time by resolution fix.

2. SEAL

2.01 The seal, an impression of which is stamped in the margin hereof, shall be the seal of the Society.

3. MEMBERSHIP AND FEES

Classes of Membership

3.01 There shall be three classes of membership in the Society: Members, Ex-Officio Members and Affiliate Members.

Members

3.02 All full-time undergraduate students registered in the Faculty of Applied Science and Engineering of the University of Toronto shall become Members of the Society upon payment of the annual membership fee pursuant to section 3.11 hereof.

Termination and Transfer of Membership

3.03 All Alumni of the School of Practical Science of the University of Toronto and of the Faculty of Applied Science and Engineering of the University of Toronto shall be Ex-Officio Members of the Society.

Affiliate Members

3.05 The following unincorporated associations and clubs shall be Affiliate Members of the Society:

- a. The University of Toronto Engineering Athletic Association
- b. The Civil Engineering Club
- c. The Geological Engineering Club
- d. The Mechanical Engineering Club
- e. The Industrial Engineering Club
- f. The Engineering Science Club
- g. The Chemical Engineering Club
- h. The Electrical Engineering Club
- i. The Metallurgy and Materials Science Club

3.06 Each Affiliate Member shall

receive an annual grant from the Society to be determined as part of the Society's budget.

3.07 Each Affiliate Member annually shall file with the Secretary of the Society a copy of its Constitution, which Constitution shall be subject to approval by Council, together with its Bylaws and a list of its elected officers and other elected and appointed members.

3.08 Each Affiliate Member shall provide for the taking of full and accurate minutes of its meetings and for the maintenance of complete financial records of its activities.

3.09 Each Affiliate shall submit its financial records to the Society's Auditors within the two weeks following February 28th in each year and these records shall be open to scrutiny by any member of the Society.

3.10 The President, Vice-President: Administration and Vice-President: Activities shall sit on the Council of the Engineering Athletic Association.

Annual Membership Fee

3.11 The annual non-refundable membership fee shall be \$22.00, until changed by by-law, of which \$6.00 shall be allocated to the University of Toronto Engineering Athletic Association.

3.12 The Society may enter into an agreement or arrangement with the University of Toronto whereby the University shall collect the annual membership fee from Members together with student tuition payments and remit the annual membership fee, together with a list of persons paying the fee, to the Society.

Constituencies

3.13 The Members shall also be divided into the following Constituencies according to the Department in which they are enrolled in the Faculty of Applied Science and Engineering at the University of Toronto:

1. First Year Group A
2. Second Year Civil Engineering
3. Third Year Civil Engineering
4. Fourth Year Civil Engineering
5. First Year Group B
6. Second Year Geological Engineering
7. Third Year Geological Engineering
8. Fourth Year Geological Engineering
9. First Year Group C
10. Second Year Mechanical Engineering
11. Third Year Mechanical Engineering
12. Fourth Year Mechanical Engineering
13. First Year Group D
14. Second Year Industrial Engineering

15. Third Year Industrial Engineering
16. Fourth Year Industrial Engineering
17. First Year Engineering Science Group I
18. First Year Engineering Science Group II
19. Second Year Engineering Science
20. Third Year Engineering Science
21. Fourth Year Engineering Science
22. First Year Group E
23. Second Year Chemical Engineering
24. Third Year Chemical Engineering
25. Fourth Year Chemical Engineering
26. First Year Group F
27. Second Year Electrical Engineering
28. Third Year Electrical Engineering
29. Fourth Year Electrical Engineering
30. First Year Group G
31. Second Year Metallurgy and Materials Science
32. Third Year Metallurgy and Materials Science
33. Fourth Year Metallurgy and Materials Science
34. First Year Group H

Voting Rights and Eligibility to Hold Office

3.14 Each Member shall have one vote on every question coming before a meeting of the membership and, subject to paragraphs 7.02, 7.09 and 7.16, every member who is 18 years of age or over and not an undischarged bankrupt, shall have the right to hold elective office in the Society.

3.15 A Member may hold only one elective office at a time.

3.16 Ex-Officio Member shall not have a vote and shall not be eligible to hold any elective office in the Society.

3.17 Affiliate members shall not have a vote and shall not be eligible to hold any elective office in the Society.

4. COUNCIL

4.01 The business and affairs of the Society shall be managed by a Board of 88 Directors which shall be known as the "Council" and Directors shall be known as "Councilors".

Councilors

4.02 The Council shall be composed as follows:

- a. Five Officers, who shall be elected by the members in accordance with the provisions of Section IX of this shall automatically become Councilors, namely:

The President
The Vice-President: Administration
The Vice-President: Activities
The Secretary
The Treasurer

b. Sixty-eight Councilors, who shall be known as "Class Representatives", and who shall be elected as follows in accordance with the provisions of Sections VIII and IX of this By-Law: two from each Constituency with 300 or fewer Members, and 4 from each constituency with 301 or more Members and shall those elected from each constituency shall also serve as Undergraduate Representatives to Faculty Council.

c. Five Councilors who shall be elected by the membership-at-large in accordance with By-Law No. 1 of the Students' Administrative Council and who shall also serve the function of Engineering Representatives on the Students' Administrative Council of the University of Toronto.

d. Nine Councilors who shall be known as "Chairmen of the Affiliates" and who shall be elected, one by each of the Affiliate Members of the Society, according to its constitution.

e. One Councilor who shall be designated from amongst the Undergraduate Representatives to Faculty Council by plurality vote of the Council, as "Executive Representative to the Faculty Council of the Faculty of Applied Science and Engineering of the University of Toronto" and who, upon being so designated, shall be deemed to have resigned as a representative of his constituency and whose place shall be filled by re-election.

Term of Office

4.03 The term of office of Class Representatives and Undergraduate Representatives to Faculty Council from first year constituencies shall be the period from the beginning of the Council Meeting immediately following the elections in September to the beginning of the Council Meeting following September.

4.04 The term of office of Class Representatives and Undergraduate Representatives to Faculty Council from the Second Year constituencies shall be the period from the beginning of the Council Meeting immediately following the elections in September to the end of the first half of the Joint Council Meeting immediately following the elections in March.

4.05 The term of office for Class Representatives and Undergraduate Representatives to Faculty Council from the Third and Fourth Years and for the President, the Vice-President: Administration, the Vice-President: Activities, the Treasurer and Secretary shall be the period from the beginning of the second half of the Joint Council Meeting

immediately following the elections in March to the end of the first half of the next Joint Council Meeting in the next following year.

Voting and Proxies

4.06 Each Councilor shall have one vote on each question to be decided by Council.

Indemnity

4.07 Every Councilor, and his heirs, executors and administrators, and estate and effects, respectively, shall be indemnified and saved harmless out of the funds of the Society, from and against:

- a. all costs, charges and expenses whatsoever that are sustained or incurred by him in or about any action, suit or proceeding that is brought, commenced and prosecuted against him, for or in respect of any act, deed, matter or thing whatsoever, made, done or permitted by him, in or about the execution of the duties of his office; and
- b. all other costs, charges and expenses that are sustained or incurred by him in or about or in relation to the affairs thereof, except such costs, charges or expenses as are occasioned by his own wilful neglect or default.

Councilor's Interest in Contracts

4.08 In accord with the provisions of the Ontario Corporations Act, every Councilor who is in any way directly or indirectly interested in a contract or proposed contract with the Society shall declare his interest at a meeting of Council and shall not vote in respect of that contract.

Removal

4.09 A Class Representative or Undergraduate Representative may be removed before the expiration of his term of office by a resolution passed by at least two-thirds of the votes cast at a Constituency meeting of which notice specifying the intention to pass such a resolution has been given and vacancies so created shall be filled by re-election.

4.10 An Officer may be removed before the expiration of his term of office by a resolution passed by at least two-thirds of the votes cast at a meeting of the Members of which notice specifying the intention to pass such resolution has been given and any vacancies so created shall be filled by Council from amongst the Councilors.

continued page 6

Eng. Soc. Incorporation

The Constitution

continued from page 5

Employees

4.11 Council shall have the power to engage or dismiss employees as necessary to achieve the objects of the Society.

4.12 Positions within the Society shall be advertised among the Members and all offers of paid employment shall be approved by Council.

Appointees

4.13 Any Appointee must be a Member of the Society.

4.14 The term of office for any appointee or employee of Council may not exceed the life of the Council making the appointment (from the second half of a Joint Council Meeting through the first half of the next Joint Council Meeting).

4.15 Council may, by majority vote, remove any appointee except the Editor of a publication, who may be removed by a 2/3 vote.

4.16 Appointees may attend and speak at meetings of Council.

Borrowing

4.17 The Council may from time to time:

- borrow money on the credit of the Society; or

- charge, mortgage, hypothecate or pledge all or any of the real or personal property of the Corporation including book debts, rights, powers, franchises and undertakings to secure any securities or money borrowed, or other debt, or any other obligation or liability of the Corporation

and, as provided in the Ontario Corporations Act, a duplicate original, or a copy certified under the seal of the company, of any charge, mortgage or other instrument of hypothecation or pledge made by the Society to secure its securities shall be filed forthwith in the office of the Minister of Consumer and Commercial Relations.

4.18 Notwithstanding paragraph 4.17, the Society shall not

- borrow money other than from chartered banks or trust companies, provided that such restriction shall not apply to purchase money obligations; or
- borrow money which is not fully repayable within one fiscal year.

Meetings

4.19 Council shall meet at least once a month during the academic year except for the month of December and shall meet within the week following elections in September.

4.20 There shall be a Joint Council Meeting during the third week of March, consisting of a meeting of the outgoing Council immediately followed by a meeting of the incoming Council.

4.21 The President may call a meeting of Council on his own authority and the President shall call a meeting of Council within one week of receiving a written request to call such a meeting signed by at least one-half of the members of Council or of the Executive Committee of Council.

4.22 Any Member may attend and speak at a meeting of Council.

Notice of Meetings

4.23 Written notice of meetings of Council must be given to every member of Council by the Secretary at least forty-eight hours before the time chosen for such a meeting.

Standing and Special Committee Reports

4.24 A full written report of the activities of each of the Standing and Special Committees shall be presented to each meeting of Council.

Quorum

4.25 A quorum shall consist of thirty-six Councillors, or two-fifths of the Councillors, present in person whichever is the lesser.

Speaker

4.26 Council shall appoint from among its members a Chairman, to be called the "Speaker" who shall ensure proper procedure during Council meetings.

4.27 In the absence of the Speaker, his place shall be taken by a councillor, not an officer, designated by the President.

4.28 The Speaker shall not have a vote except in the case of a tie when he shall cast the deciding vote.

Rules of Order

4.29 All meetings of Council and of the Committees of Council shall be governed by Bourinot's Rules of Order, provided that these rules of order do not conflict with the procedures outlined in the By-Laws of the Society.

5. STANDING AND SPECIAL COMMITTEES

5.01 The Standing Committees of Council shall be:

- Blue and Gold Committee
- Communications Committee
- First Year Committee
- Fourth Year Committee
- Professional Development Committee
- SAC Committee
- Social Committee
- Women's Committee
- Employment Committee

5.02 Any Member may be a member of a Committee.

Chairmen

5.03 Each Standing Committee shall elect its chairman by a show of hands of the Committee Members.

5.04 The election of the chairman, who must be a Councillor, shall be ratified by Council.

Membership

5.05 Each Class Representative except Undergraduate Representatives to Faculty Council shall serve on at least one Standing Committee.

5.06 Class Representatives from the first year Constituencies shall serve on one other committee other than the First Year Committee.

5.07 The Chairmen and Council membership on each Standing Committee shall be decided no later than the September meeting of Council except in the case of the First Year Committee whose chairman shall be decided upon by the following meeting.

Budget

5.08 Committee Chairmen shall be responsible for submitting a Committee budget to the Vice-President: Administration for consideration in preparing the Fall Budget and shall be responsible for ensuring that Committee expenditures remain within the Society's budget.

5.09 Committee Chairmen shall be responsible for submitting written year-end reports in the activities of the Committees to the Joint Council Meeting in March.

Blue and Gold Committee

5.10 The Blue and Gold Committee shall be responsible for the co-ordination of the activities of The Lady Godiva Memorial Band, and other activities related to "Skule Spirit" e.g., Chariot Race, Slave Auction, Homecoming Float...

5.11 The Lady Godiva Memorial Band Leader and the Chief Attillor shall be members of the Blue and Gold Committee.

Communications Committee

5.12 The Communications Committee shall oversee all Society publications including their finances, production and content.

5.13 The Editor of each Society publication shall be a member of the Communications Committee.

5.14 The Communications Committee shall be responsible for the establishment or review of editorial guidelines for the publications at the commencement of its term of office.

First Year Committee

5.15 The First Year Committee shall be composed of all First Year Council members and they are responsible for any activities or matters of specific concern to First Year students except Orientation.

5.16 The chairman of the First Year Committee shall be a councillor who is a first year student.

Fourth Year Committee

5.17 The Fourth Year Committee shall be responsible for the Ball, the Kipling Ritual, graduation photographs and other activities specifically pertaining to the graduating class.

5.18 The Chairman of the Fourth Year Committee shall be a member of the fourth year class.

5.19 The Chairmen of each of the Affiliate Members shall be members of the Fourth Year Committee.

Professional Development Committee

5.20 The Professional Development Committee shall be responsible for creating an awareness of engineering as a profession among Society Members and for coordinating Society participation in student and technical conferences e.g., CCEs, APEO...

5.21 The Professional Development Committee shall appoint a member of council who shall be responsible for any communication between this Engineering Society and other Engineering Societies across Canada.

SAC Committee

5.22 The SAC Committee shall consist of all the Engineering representatives to the Students' Administrative Council and the Chairman of this Committee shall be one of these SAC representatives.

Social Committee

5.23 The Social Committee shall plan all Engineering Society social activities including Cannonball.

Women's Committee

5.24 The Women's Committee shall be responsible for organizing social, professional and educational activities of specific interest to undergraduate women Members.

Employment Committee

5.25 The Employment Committee shall act as liaison with the University of Toronto Career Counselling and Placement Centre and shall deal with any matters which relate to student employment.

5.26 The Committee shall conduct a yearly "Employment Survey" of the Society.

Special Committees

5.27 In addition to the Standing Committees, Council may appoint Special Committees as needed whose terms of reference and membership shall be defined by Council and whose lifetime shall end with the lifetime of the Council.

6. EXECUTIVE COMMITTEE OF COUNCIL

6.01 There shall be an Executive Committee of Council which shall recommend general policy to Council, provide the means of implementing Council resolutions and supervise the employees of the Society.

Members of Executive Committee

6.02 Members of the Executive Committee of Council shall be the President, the Vice-President: Administration, the Vice-President: Activities, the Treasurer, the Secretary, the Chairmen of the Affiliates, the Chairmen of the Standing Committees and the Council's Executive Representative to the Faculty Council.

6.03 One representative from the Engineering Alumni Association appointed by the Engineering Alumni

Association and one representative of the Faculty Council appointed by the Dean of the Faculty of Applied Science and Engineering shall be Ex-Officio Members of the Executive Committee and shall not have a vote.

Meetings

6.04 The Executive Committee of Council shall meet often enough to conduct the affairs within its jurisdiction.

6.05 Any Councillor may attend any meeting of the Executive Committee but shall not be permitted to vote thereat.

Quorum

6.06 A quorum shall consist of twelve members of the Executive Committee present in person or by proxy.

7. OFFICERS

7.01 The officers of the Society shall be the President, the Vice-President: Administration, the Vice-President: Activities, the Secretary, and the Treasurer who shall be elected by the Members.

President

7.02 Any Member who has not previously held the office of President is eligible for election to the office of President provided that that Member is 18 years of age or older and will be registered in the fourth year of the undergraduate program in Engineering in the September of his term.

7.03 The President shall be the Chief Executive Officer of the Society.

7.04 The President shall have the power to call meetings of Council pursuant to the provisions of Section 4.21.

7.05 The President shall preside at all meetings of the Executive Committee of Council.

7.06 The President shall be a voting member of all Standing and Special Committees appointed by Council.

7.07 The President shall serve as the official representative of the Society on all suitable occasions.

7.08 The President shall have such other duties as may pertain to the Office.

Vice President: Administration

7.09 Any Member who has not previously held the office of Vice-President: Administration is eligible for election to the office of Vice-President: Administration provided that he is 18 years of age or older.

7.10 The Vice-President: Administration shall assist the President in the discharge of his duties and shall deputize for him in the event of temporary necessity.

7.11 The Vice-President: Administration shall be responsible for overseeing all financial and administrative affairs of the Society.

7.12 The Vice-President: Administration, in conjunction with the Executive Committee, shall prepare three budgets for Council Approval:

- A Spring Budget presenting a general overview of the planned financial priorities which shall be presented to the first Council meeting after the Joint Council meeting.
- A Fall Budget containing detailed projections of planned revenue and expenditure which shall be presented at the second Council meeting of the fall term.
- A Winter Budget derived from the Fall Budget and revisions based on actual revenue and expenditures which shall be presented at the January Council meeting.

Any revisions to the Society's budgets must be approved by Council.

7.13 The Vice-President: Administration shall serve as the official representative of the Society in the absence of the President.

7.14 The Vice-President: Administration shall have such other duties as may pertain to the Office.

7.15 The Vice-President: Administration shall be a voting member of all Standing and Special Committees appointed by Council.

Vice-President: Activities

7.16 Any Member who has not previously held the office of Vice-President: Activities shall be eligible for the office of Vice-President: Activities provided that he is 18 years of age or older.

7.17 The Vice-President: Activities shall assist the President in the discharge of his duties and shall be responsible for overseeing all cultural, technical, educational, athletic, and social activities of the Society.

7.18 The Vice-President: Activities shall be a voting member of all Standing and Special Committees appointed by Council.

7.19 The Vice-President: Activities shall serve as the official representative of the Society in the absence of the President and the Vice-President: Administration.

7.20 The Vice-President: Activities shall have such other duties as may pertain to the Office.

Treasurer

7.21 In accordance with the Ontario Corporations Act, the Treasurer shall keep, or cause to be kept, proper books of account and accounting records with respect to all financial and other transactions of the Society and, without derogating from the foregoing, records of:

- all sums of money received and disbursed by the Society and the matters with respect to which receipt and disbursement took place;
- all sales and purchases of the Society;
- the assets and liabilities of the Society; and
- all other transactions affecting the financial position of the Society which books and records shall be kept at the head office of the Society and shall be open to the scrutiny of any member of the Society.

7.22 The Treasurer shall be responsible for the security of the financial records of the Society and for reporting the expenditures of the Society's funds in accordance with the budget approved by Council.

7.23 The Treasurer shall make a report to Council and to the Executive Committee of the Council at all regular meetings of the Society's financial position including:

- a comparison of actual income and expenses to the budget; and
- a statement of expected income and expense.

7.24 The Treasurer shall, within the two weeks following each February 28th, submit the Society's accounts and the year-end financial statements to the Auditors and shall present the Auditor's Report at the Annual General Meeting of the Members in September.

Secretary

7.25 In accordance with the provisions of The Ontario Corporations Act the Secretary shall keep, or cause to be kept,

- a copy of the letters patent and of any supplementary letters patent issued to the Society;
- all by-laws and special resolutions of the Society;
- a register of members in which are set out the names and addresses, alphabetically arranged, of all persons who are or who have been within the preceding ten years, Members, Ex-Officio Members and Affiliate Members;
- a register of Councillors in which are set out the names, addresses and callings of all persons who are or have been Councillors of the Society together with the several dates on which each became or ceased to be a Councillor.

7.26 The Secretary shall issue notices of meetings of the Members, of Council and of the Executive Committee of Council and shall prepare an agenda for each meeting and shall take, or arrange to have taken and preserved in a minute book kept for that purpose, full and ac-

continued page 7

Eng. Soc. Incorporation

The Constitution

continued from page 6

curate records of attendance and voting and minutes of all meetings of the Members, Council and of the Executive Committee of Council.

7.27 After approval thereof by the Members, the Council, or the Executive Committee of Council, the Secretary and the President shall sign the minutes of the previous meeting.

Bonding

7.28 The President, the Vice-President: Administration, the Vice-President: Activities, the Treasurer and the Secretary shall be bonded.

Signing Officers

7.29 The signing officers of the Society shall be the President, the Vice-President: Administration, the Vice-President: Activities, and the Treasurer, the signatures of at least two of whom shall be required in order to validate any instrument relating to the financial matters of the Society.

8. MEETINGS OF THE MEMBERSHIP

Meetings of Members

8.01 Meetings of the Members may be called at any time by resolution of Council.

Notice

8.02 Notice of meetings of the Members shall be published in the Cannon, or such other comparable newspaper distributed in the Faculty of Engineering having comparable circulation as the Council may by resolution designate, at least once a week for two consecutive weeks next preceding the meeting.

Quorum

8.03 A quorum at a meeting of the Members shall be 52 Members present in person unless the meeting is called to pass a resolution to remove an Officer in which case the quorum shall be one-half of the Members.

Show of Hands

8.04 Any question shall be decided by majority vote by a show of hands unless a poll is demanded thereon by a majority of the Members.

Annual General Meeting of the Members

8.05 There shall be an Annual General Meeting of the Members held during September.

Appointment of Auditors

8.06 At the Annual General Meeting of the Members, the Members shall appoint an Auditor who shall hold office until the next annual meeting and shall authorize the Council to approve the remuneration of the Auditor.

General Meeting to Elect Officers and Engineering Representatives to SAC

8.07 There shall be a General Meeting of the members, held during the first complete week of classes in the month of March to elect the Officers and the Engineering Representatives to SAC according to procedures set out in Section 9 hereof.

Auditor's Report

8.08 At the Annual General Meeting of the Members, the Auditor's Report shall be read.

Other Matters

8.09 At the Annual General Meeting the members shall consider passing any by-laws presented by Council and consider any other matter that according to the Ontario Corporations Act may be put before a meeting of the Members.

Publication of Financial Statements

8.10 At least fourteen days before the Annual General Meeting, the Society shall cause a copy of the Society's financial statements and the Auditor's report thereon to be published in the Cannon and copies of the financial statements shall be made available for inspection by the Members at the head office of the Society and shall be submitted to the Office of the Governing Council of the University of Toronto.

Constituency Meetings and Elections

8.11 There shall be an annual meeting of each of the 2nd and 3rd year Constituencies also known as the "incoming 3rd and 4th year Constituencies" held during the second complete week of classes in March at which time the Class Representatives shall be elected by a show of hands of those Members present in person.

8.12 There shall be a meeting of each of the 1st and 2nd year Constituencies held in the second complete week of classes in the week of September at which time Class Representatives shall be elected by a show of hands of those Members present in person.

Designation of Council's Executive Representative to Faculty Council

8.13 From amongst the Undergraduate Representatives the Council's Executive Representative to Faculty Council shall be designated by the Council during the 2nd complete week of classes in the month of March and a by-election held to fill the office vacated by such designation.

Notices

8.14 Notice of constituency meetings, elections and by-elections shall be given at least one week prior to the meetings or elections by publication of a notice of meeting or election in the Cannon or such other comparable newspaper distributed in the Faculty of Engineering and having comparable circulation as the Council may by resolution designate.

9. ELECTIONS

Chief Returning Officer

9.01 Council shall appoint one of its members as "Chief Returning Officer" to organize and conduct elections by show of hands at the annual Constituency Meetings and by ballot at the Annual General Meeting of the Members.

9.02 The Chief Returning Officer shall be responsible for giving notice of elections, publishing election rules, setting campaign spending limits, and publication of election results by 5:00 p.m. of the day following the election or end of balloting excluding weekends or holidays together with all other details of conducting elections.

9.03 The Chief Returning Officer may appoint polling clerks, however, only the Chief Returning Officer may open ballot boxes.

Scrutineers

9.04 Each candidate may designate one Member to act as a scrutineer during the counting of a show of hands or ballots.

Voting by Ballot

9.05 Where voting is by ballot, voters shall identify themselves by presenting their student card to the polling clerk who shall put a distinctive mark on the voter's student card.

9.06 At the time of balloting, the voter shall sign a voters' list.

By-Elections

9.07 If the office of the President becomes vacant it shall be filled by the Vice-President: Administration thereby causing a vacancy in the office of Vice-President: Administration.

9.08 All elective positions which become vacant or which were not filled in March or September shall be filled through by-election except in the case of the Vice-President: Administrator and the Vice-President: Activities, the Treasurer and the Secretary, which positions shall be filled by plurality vote in a secret ballot from amongst the voting members of Council.

Nominations

9.09 Nominations for the officers shall open three weeks prior to elections and shall close on the Friday immediately before elections.

9.10 Nominations for Class Representatives shall be open one week prior to elections and shall close immediately before elections.

9.11 If no nominations have been filed for an office, nominations for that particular position may be reopened for a period to be set by the Chief Returning Officer.

9.12 Offices for which a single nomination has been filed at the close of nominations, or any reopened nomination period, shall be filled by acclamation.

Complaints

9.13 Complaints of breaches of the election rules or irregularities in election procedures must be made to the Chief Returning Officer not later than 24 hours after the posting of the election results.

Appeals

9.14 Appeal of decisions of the Chief Returning Officer or complaints about the Chief Returning Officer may be brought before the Fourth Year Committee which shall recommend action to Council.

10. ENGINEERING STORES

10.01 The Society shall maintain a Store, hereinafter called the "Engineering Stores", which shall provide student supplies for Members of the Society on a non-profit basis.

Manager

10.02 Council shall annually appoint a Manager of the Stores who shall be responsible for the operation of the Stores according to policies to be established by resolution of Council.

10.03 Council shall annually appoint two Assistant Stores Managers who shall assist the Manager of the Store in his duties.

10.04 The Manager of the Stores shall be responsible for the maintenance of the books and financial records of the Stores under the supervision of the Treasurer of the Society and shall submit these books and financial records to the Society's Auditors within the two weeks following each February 28th, which books and records shall be open to the scrutiny of any Member of the Society.

10.05 The Manager of the Stores shall be responsible for the security of all Stores property and merchandise under the supervision of the Vice-President: Administration.

Signing Officers

10.06 The signing Officers of the Stores shall be the President, the Vice-President: Administration, the Treasurer, and the Manager of the Stores, the signatures of at least two of whom shall be required in order to validate any instrument relating to the financial matters of the Stores.

Bonding

10.07 The Manager of the Stores shall be bonded.

11. PUBLICATIONS

11.01 In order to further the Society's aims, and to inform and entertain its members, the Society shall support and finance the following publications:

The Toike Oike
The Cannon Newspaper
The Book of Skule Yearbook
The Skule Handbook
The Tiny Toike Newsletter
The Skule Calendar

Editors

11.02 Council shall appoint annually editors for each of its publications from amongst the Members of the Society.

11.03 Each editor shall agree to the obligations and responsibilities defined in this Section and shall agree that failure to meet these obligations may result in his/her censure or removal as editor.

Finances

11.04 The Society shall appoint annually a Publications Business Manager responsible to the Vice-President: Administration from amongst the Members of the Society who shall oversee the finances of the publications, solicit advertising revenue, and work with the Treasurer in keeping the books and records of the publications.

11.05 Each publication shall be included in the annual budget of the Society.

11.06 Any expenditure on a given issue or publication which exceeds the per issue or publication budget as allocated by Council, must have the prior approval of the Communications Committee.

Toike Oike

11.07 The publishing policy of the Toike Oike shall be:

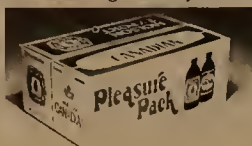
- To inform Members of past, present and upcoming events including activities of the Society, intramural and interfaculty sports, and other University and outside events;
- To provide Members with a humorous publication containing original material or material reprinted from other publications;
- To be a credit to the Engineering Society.

11.08 The Toike Oike shall be published monthly, subject to a publications schedule to be established by the Communications Committee which committee may amend the schedule from time to time.



Our get together for your get together.
Molson Pleasure Pack.

12 Export Ale. 12 Canadian Lager. In every case, two great tastes.



continued page 8

Eng. Soc. Incorporation

The Constitution

continued from page 7

The Cannon

11.09 The Publishing policy of The Cannon is:

- to inform Members of past, present and upcoming events which include events of the Society, intramural and interfaculty sports, and other events outside the Society pertinent to the interests of the Members;
- to provide a forum for the discussion of issues relating to the Society, the Faculty, the University and the profession of engineering;
- to inform Members of technical developments in the fields of applied science and engineering, especially those occurring within the Faculty and the University;
- to be published monthly, subject to a publishing schedule as previously established by the Communications Committee, which schedule may be amended by the Committee when necessary;
- to be a credit to the Society.

The Book of Skule Yearbook

11.10 The publishing policy of the Book of Skule Yearbook is:

- to provide Members with a record of the year's events and achievements of the Society;
- to record and display the names and photographs of the graduating class of the current school year;
- to be published annually, for distribution at the end of the school

year,

- if production costs are not met by internal sources of revenue, a nominal fee as determined by the Communications Committee may be charged to partially or wholly cover remaining costs.

The Tiny Toke Oike

11.11 The publishing policy of the Tiny Toke Oike is:

- to inform students of past, present and upcoming events which include those of the Society, intramural and interfaculty sports, and other events outside the Society pertinent to the interests of the Members;
- to be published every week in which an issue of the Toke Oike or The Cannon is not published, or as often as deemed necessary by the Communications Committee to achieve the above objectives.

The Skule Calendar

11.12 The publishing policy of The Skule Calendar is:

- to provide students with a monthly calendar of dates listing the Society and academic events of the year;
- to publish annually for distribution at the commencement of the academic year in September which distribution is free to freshmen students and for a nominal fee to others as set by the Communications Committee.

The Skule Handbook

11.13 The publisher policy of The Skule Handbook is:

- to provide freshman students with useful information regarding the structure and operation of the Society and the University;
- to provide freshman students a useful guide to the nature of the engineering and university life;
- to publish annually for distributing to freshmen students at the commencement of the academic year in September.

Enforcement of Objects

11.14 The fulfillment of the objectives, as stated for each publication, shall be overseen by the Communications Committee.

11.15 Any individual who feels that these guidelines are not being observed may direct a complaint detailing his/her objections to the Chairman of the Communications Committee.

11.16 The Chairman of the Communications Committee shall investigate the complaint and arrange to present the facts of the complaint to the next meeting of the Executive Committee of Council at which meeting both the editor and the complainant shall be invited to attend the speak.

11.17 The Executive Committee shall formulate a recommendation for action if any to be taken on the complaint and shall present the matter and the Executive Committee's recommendation to Council.

Disciplinary Action

11.18 Actions which may be taken by Council against the Editor in response to a complainant about a Society publication shall be:

- censure;
- suspension, for a stated period;

3. removal.

11.19 Action 1 can be approved by a majority vote of Council; Actions 2 and 3 must be approved by a two-thirds vote of Council.

12. BY-LAWS AND AMENDMENT

12.01 The Councillors, by resolution passed by a two-thirds majority of the Councillors present and voting at a meeting of the Council, may pass by-laws not contrary to the Ontario Corporations Act or to the letters patent or the supplementary letters patent to regulate:

- the admission of persons and unincorporated associations as members and as ex-officio members and the qualification and conditions of membership;
- the fees and dues of members;
- the issue of membership cards and certificates;
- the suspension and termination of memberships by the Society and by the Member;
- the transfer of memberships;
- the qualification of the Councillors and the ex-officio Councillors, if any;
- the time for and the manner of election of Councillors;
- the appointment, remuneration, functions, duties and removal of agents, officers and employees of the Society and the security, if any, to be given by them to it;
- the time and place and the notice to be given for the holding of meetings of the Members and of the Council, the quorum at meetings of the Members, the requirement as to proxies, and the procedure in all things at Members' meetings and at meetings of the Council;
- the conduct in all other particulars of the affairs of the Society.

12.02 A by-law passed under paragraph 12.01, unless confirmed by a two-thirds majority vote at a general meeting of the Members duly called for that purpose, is

effective only until the next Annual General Meeting of the Members unless confirmed thereat, and, in default of confirmation thereat, ceases to have effect at and from that time, and in that case no new by-law of the same or like substance has any effect until confirmed at a general meeting of the Members.

12.03 The Councillors, by resolution passed by two thirds of the Councillors present and voting at a meeting of the Council, may pass by-laws not contrary to the Ontario Corporations Act or to the letters patent or the supplementary letters patent providing for borrowing by the Society, an Executive Committee of Council and for the division of the Members into constituencies.

12.04 No by-law passed under paragraph 12.03 is effective until it has been confirmed by at least two-thirds of the votes cast at a general meeting of the members duly called for considering the by-law.

Approval by Governing Council

12.05 An amendment, repeal or re-enactment of Section 3 Membership and Fees, Section 8 Meetings of the Membership, Section 9 Elections, Section 12 By-Laws and Amendment, Paragraph 4.02 Councillors, 4.16 and 4.17 Borrowing, and 7.12 and 7.22 Budget shall be effective only upon the approval thereof by the Governing Council of the University of Toronto.

13. FISCAL YEAR

13.01 The fiscal year of the Society shall end on February 28th in each year.

signed

President

Secretary

Engineering Society

Announcements

Joint Meeting of Council

The Joint Council Meeting originally scheduled for March 17 has been moved to March 31 by resolution of Council in order to allow for the scheduling of incorporation around the meetings of Governing Council.

Engineering Society Nominations

Nominations are now open for the Engineering Society positions of President, Vice-President; Administration, Vice-President; Activities, Treasurer, and Secretary. Nomination forms and election rules are available in the Society office. Nominations close February 27, 1981.



Notice of Referendum

**A Referendum shall be held on
February 5 and February 6, 1981, to all
Engineering students on the following question:**

**Do you approve of the incorporation with
no shared capital under the Ontario
Corporations Act of the University of
Toronto Engineering Society under the
name of "University of Toronto
Engineering Society?"**

YES

NO

**A polling booth shall be set up in the
Metro Library cafeteria from 9:00 a.m.
to 5:00 p.m. on the polling days.**

**Students are encouraged to address any
questions concerning this issue to their
class representatives or to John Byrne,
Vice-President: Administration at the
Society offices on the 3rd floor of the
Metro Library Building.**

**Students available to act as polling
clerks are asked to sign the list in the
Engineering Stores.**

ARCAS watches over the PVC workplace

Protection From the

by Randy Sinukoff
Chem. Eng. 8T2

With all the talk going on these days about nuclear waste disposal, dioxin seepage from old chemical dumps, and asbestos fibre inhalation in Ontario's older school buildings, it's a wonder that every person in our province isn't affected in one way or another by some industrial chemical hazard, whether supposed or real. Whether the public knows it or not, it is being well protected from many potential hazards which are produced by Canada's prospering consumer goods industries. The protection noted above is in the form of government guidelines and regulations, and you'll be glad to know that most manufacturing companies in our country adhere to these stipulations relatively easily.

A Carcinogen

A case in point is polyvinyl chloride resin (PVC) production, in which vinyl chloride monomer (VCM) is polymerized to make a versatile plastic product. PVC is used directly in the manufacture of innumerable consumer and industrial products such as containers, wrapping film, electrical insulation, pipelines, and credit cards, to name a few. The stumbling block in the process though, is that vinyl chloride monomer is now known to be a human carcinogen. The effects of exposure to this chlorinated hydrocarbon gas are quite subtle and slow to surface and are thus not as sensational as those of a deadly poison such as dioxin. When was the last time a newspaper headline quoted a controversy concerning vinyl chloride? However, the dangers of vinyl chloride are real. In the past five to ten years, the realization of these dangers, and the detection of VCM in the air surrounding process equipment and the chemical plant, have become major considerations in the yearly budget of today's large chemical corporations. Even though the main purpose of this article is to describe the detection systems used in industry, a brief background and history of the polyvinyl chloride production process must first be outlined.

The Process

The primary building block for the entire process is ethylene (C_2H_4), a by-product of petroleum refining. In general, the ethylene is chlorinated by one of two processes (see Figure 1), either directly with chlorine gas or by oxychlorination, in which the ethylene reacts with air and gaseous hydrogen chloride. In both cases, the product is ethylene dichloride ($C_2H_2Cl_2$). This crude compound is purified of by-products and then "cracked", replacing one of the chlorine atoms in the molecule by hydrogen. The final product thus formed is vinyl chloride

monomer (CH_2CHCl) which can then be used directly to make PVC, or can be transported by pipeline or rail tank car to a nearby plant. Emissions of gas can occur anywhere in the process but tend to be found where transfers from one stage to another take place.

The greatest potential for VCM leaks occurs in the actual polymerization process. In general, polymerization of the vinyl chloride monomer involves "sticking" many of these simple molecules together, end to end, to form a long chain-linked structure which is actually quite complex. The relative intricacy of the end product is the key to its strength and versatility.

Assuming that the VCM has arrived at its destination safely, the polymerization process can proceed. The monomer is liquified by feeding it under pressure into a sealed batch reactor. Deionized water, a dispersion agent (a soap), and a reaction initiator are also added to the reactor concurrently with the VCM. The dispersion agent holds the liquid vinyl chloride in suspension as small droplets, while the initiator causes free radical formation, which is the means by which the reaction proceeds. Since these free radicals are formed only at elevated temperatures, the reactor is heated to about 50°C. The outside of the reaction vessel is then bathed in cool water in order to dissipate the excess heat evolved upon polymerization.

After the reaction has proceeded to near completion (8 to 16 hours, depending on the initiator), the batch of PVC resin, unreacted VCM, and water is dumped into strippers where the remaining vinyl chloride is driven off and recycled. Any final traces of VCM are removed in blend or

mix tanks. The product is then separated from the remaining water, dried, and packaged for storage and transport. The appearance of polyvinyl chloride resembles that of sugar or snow, having the same white colour but vastly different properties.

Hazards

The history of polyvinyl chloride production is directly related to the history of its monomer, vinyl chloride. Because of this, health hazards involved when making PVC are similarly founded. Even though the resin product has been produced on a large industrial scale only since the early 1950s, data on vinyl chloride has been accumulated since 1925.

Initial considerations for vinyl chloride use included anesthesia, but lab tests on animals showed the gas to produce heart troubles during unconsciousness. No other important applications were found until the late 1940s, when PVC resin production was adapted to an industrial scale. The only health effect noted until 1970 was the narcotic "high" which VCM produced when a worker was exposed to the gas.

In the early years of manufacture, PVC reactors were cleaned by hand, and the product was not thoroughly stripped of unreacted monomer, even though the gas was volatile enough to separate from the resin during storage. Because the dangers were not known then, control of gas emissions was not considered important. As an example, throughout the 1950s, general plant exposure was frequently higher than 1000 ppm or 0.1%. Reactor cleaning posed even more extreme conditions. By contrast, the current "safe" level of exposure in Canada is 10 ppm in an eight hour work shift

(time-weighted average or TWA) with a 25 ppm maximum over a fifteen minute period. In effect, these earlier employees acted as guinea pigs.

As time progressed and plant hazards of all kinds were starting to be recognized, United States health organizations began to get suspicious of vinyl chloride. In 1961, a threshold limit value (TLV) or maximum daily level of exposure of 500 ppm was instituted based on VCM's narcotic properties. In 1970, when vascular diseases started to develop in men who had cleaned reactors years before, the TLV was quickly lowered to 200 ppm. The real scare came in 1973/1974 when a rare liver cancer called angiosarcoma was found in several workers around North America. The TLV then fell to 50 ppm. The threat was real. People thus employed had to be protected. Government intervention was the answer. Companies were forced to implement a system for sampling air in the workplace for ambient vinyl chloride. The analytical detection was required to be sensitive to 1 part per million. Even though expenditures for a VCM monitoring system could run up to \$500,000, the outlay was required and was made.

Exposure Control

The main goals in exposure prevention are the identification and control of excessive VCM levels. Although current gas concentrations are frequently less than 1 ppm over eight hours, and common spot levels are usually not detectable (less than 1 part per billion), the presence of a monitoring system of some kind protects the worker and the company should a significant emission occur.

A common and required

check for VCM exposure in the plant is through the use of "personnel sampling pumps". Worn on the lapel of a worker, these battery-operated air intake pumps are attached to a tube filled with an inert substance which absorbs vinyl chloride. Upon absorption of VCM, the material changes colour, with the quantity of transformed solid proportional to the amount of VCM which has entered the tube. A strong advantage to this method is that the actual level of exposure of the employee is found as he conducts his daily tasks. A pitfall is the time taken to make a determination. It is obvious that high level, short duration concentrations cannot readily be detected. To combat this inadequacy, monitoring can be done by sample collection and separate analytical determination by gas chromatography. Although these measurements are necessarily intermittent, it is more likely that dangerous conditions will be discovered if present.

ARCAS

An effective and modern automatic monitoring system is exemplified by the ARCAS VCM monitoring system used by Esso Chemical Canada in Sarnia, Ontario. Esso produces PVC resin in a number of reactors which are in operation in a continuous batch mode. Vinyl chloride is supplied by pipeline from another nearby chemical company and thus the possibilities of emissions of VCM can occur only in the areas depicted in Figure 2. Because Esso is a large manufacturer of PVC, a computerized sampling and analyzing system was instituted in 1975 to meet environmental protection needs and comply with anticipated government regulations. The

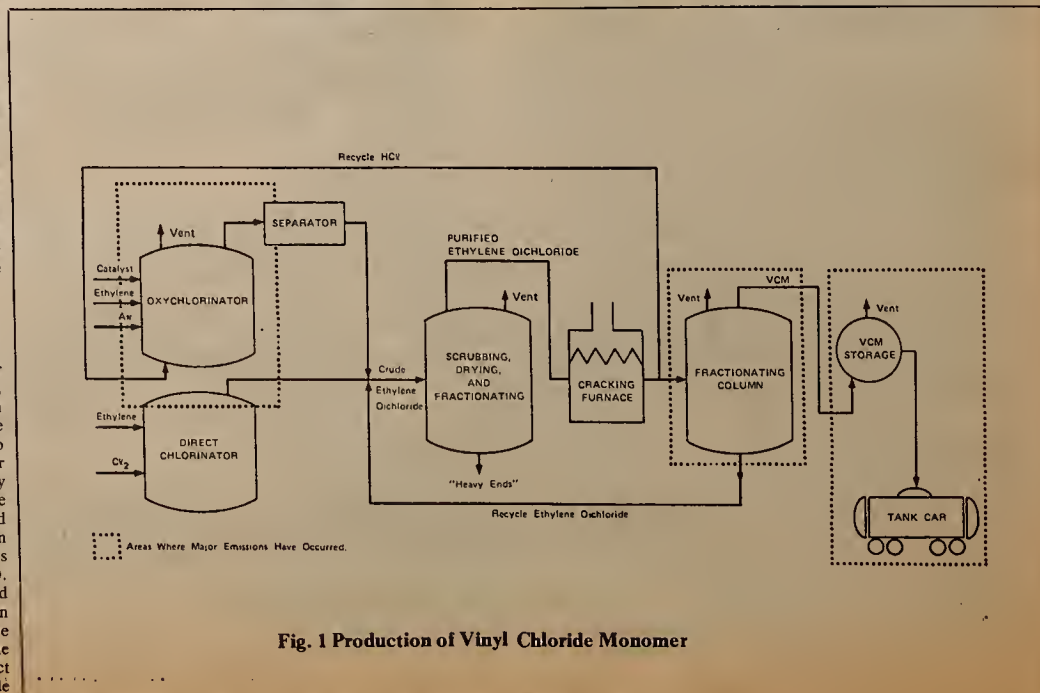
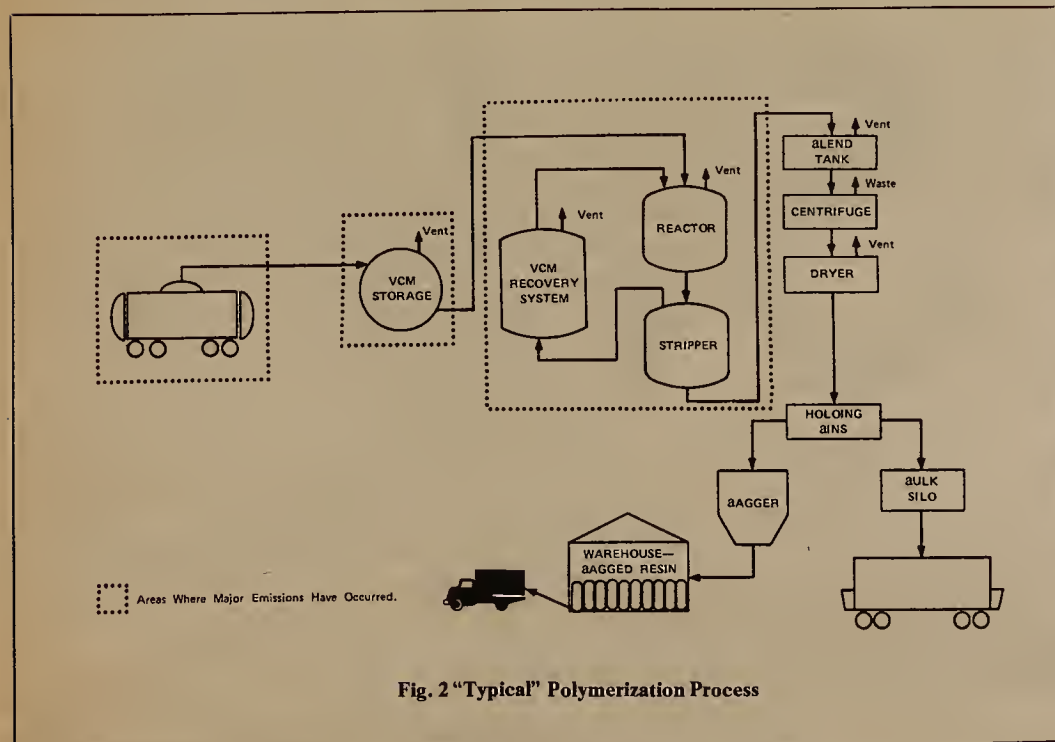


Fig. 1 Production of Vinyl Chloride Monomer

Industrial Environment



functions. Such interferences might cause erroneous outputs.

The stream select segment is another separate function. Normally, streams 1-15 are scanned in numerical order but since control ultimately lies in the hands of the programmer, specific areas can be monitored more frequently in order to aid in VCM leak detection. In this respect, the sampling can be almost manual in nature.

The next major facet of ARCAS is the warning light or field alarm system. These lights, which are directly controlled by the computer's micro processor (to be described below), are plainly visible from all points in a given area, and give immediate indication of potentially hazardous vinyl chloride concentrations. At levels of 10-25 ppm, a blue-green light flashes, while a flashing red light shows 25 ppm or greater. When a field alarm is activated by the computer, it remains operative for the next fourteen minutes until that stream is reanalyzed. If the high VCM level persists, the lamp continues flashing. Obviously if an alarm is indicated, proper precautions such as wearing an air mask or leaving the area until the problem is cleared, are to be followed.

The computer's micro processor serves as a sort of "Grand Central Station" for signals generated by other parts of the system. Transmission of alarm levels (see Figure 3) for digital control room display, of field alarm light signals, and of stream identity/concentrations for printout, are controlled at this stage of the automation.

Finally, the computer's memory core comes into play. Data is stored temporarily for one cycle durations and then filed into another memory for time average, and weighting calculations. Simultaneously, this output is printed, giving a permanent record of the last fifteen minutes of monitoring, as required by law. Over the course of a day, at preprogrammed intervals, additional reports are provided, such as four and eight hour time-weighted averages and 24 hour alarm summaries.

Recognized Danger

There is no doubt that an effective VCM monitoring system such as the ARCAS is essential in protecting each individual who may possibly come into contact with vinyl chloride in the workplace. But it is only one part of a whole system for overall plant safety. The simple awareness of the dangers involved with vinyl chloride is as essential to an employee at a PVC plant as is knowing the hazards of driving a car to you and I. This may seem a trivial analogy, but it is the recognition of these dangers that count. It's nice to know that since 1975, vinyl chloride has received the respect it's been due all these years.

The author thanks the senior administrative staff at the PVC Unit, Medical Department and Control Section of Esso Chemical Canada, Sarnia, Ontario for their assistance.

advantages of the ARCAS system are the continuous scanning of fifteen separate locations in the plant, printed records of all analyses, and the capacity for repetitive mathematical calculations (such as time-weighted averages) to be done by initial programming. A notable disadvantage to this system was the high initial cost.

Air samples are drawn from areas most likely to contain vinyl chloride. As was mentioned before, there are fifteen sample streams, and a sixteenth tube which is connected to a VCM standard cylinder. This sixteenth line is normally closed but periodic calibration checks are done to ensure accurate machine operation. Random checks with other standards are also conducted through regular sampling lines. To ensure that air samples are representative of current plant conditions, a main purge pump continuously sucks sample air through all lines to a central point, where any one channel can be fed to an automatic gas chromatographic analyzer. In normal operation, each stream is selected once every fifteen minutes in a preprogrammed sequence. When all sample streams have been analyzed, one sample cycle is complete.

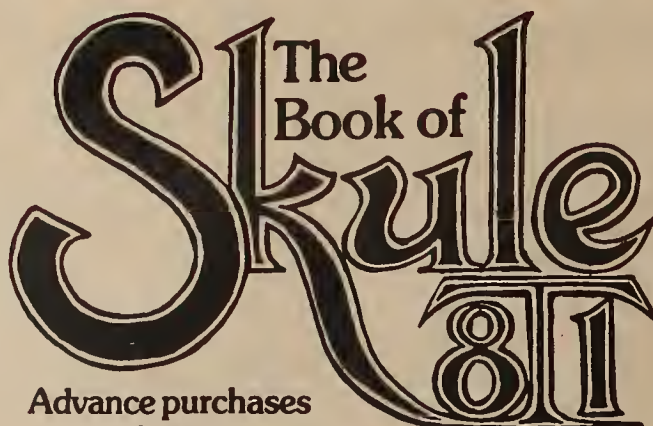
Although the sampling procedure is quite simple, it would require much manual work if not for the presence of the computer. This automated machine controls the actual analysis of the gas stream also, which is an essential aspect of the VCM monitoring.

The gas chromatograph programmer is responsible for the sequencing of sample air inputs. Discrimination of vinyl chloride gas as opposed to other ambient hydrocarbon vapours is another of the programmer's



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Engineering This Month

If you are organizing an event, or know of one, that would be of specific interest to Eng. Soc. members, please drop a short note about it in the Tiny Toike box in the Society offices or contact Ella at 978-2917. It will be listed here free of charge. Suitable events might include Eng. Soc. committee meetings, talks, seminars or presentations given on or off campus by University groups or outside organizations.

**Monday, February 2 to
Friday, February 27**
Eng. Soc. Nominations

Nominations for the five elected Engineering Society executive positions are now open. For further information and nomination forms, see Ella in the Eng. Soc. offices.

**Wednesday, February 4 to
Saturday February 7**
Skule Nite

The annual Engineering

musical-comedy revue provides a look into our fantasies. Limited tickets are still available at the Hart House Theatre box office. Call 978-8668.

**Thursday, February 5
Friday, February 6**
Incorporation Referendum

The Engineering Society is holding a referendum, seeking a mandate to incorporate. Cast your ballot between 9:00 a.m. and 5:00 p.m. at polling stations in the Galbraith lobby or the Engineering Cafe.

**Monday, February 16 to
Friday, February 20**
Reading Week

Lectures, labs., and tutorials are suspended. Enjoy!

Tuesday, February 24
Full Council Meeting

All class and Eng. Soc. and Faculty Council reps are asked to attend, promptly at 5:00 p.m. in GB202.

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